

WHAT IS CLAIMED IS:

1. A detection and evacuation system, for use in a home, the system comprising:
 - 5 a) at least one sensor assembly for detecting contamination of a contaminate in ambient air, the sensor assembly including a communication device that produces a first emergency signal upon determining the existence of a pre-determined level of toxic contamination;
 - b) a central processor, the central processor including:
 - 10 i) a receiving device for receiving the first emergency signal from the communication device of the sensor assembly; and
 - ii) at least one transmitter capable of transmitting a second emergency signal;
 - c) at least one deactivation device energized in response to the second emergency signal from the central processor transmitter, the deactivation device operating to suspend operation of an appliance;
 - d) a messaging unit energized in response to the second emergency signal from the central processor transmitter, the messaging unit operating to notify emergency personnel that the sensor assembly has detected the pre-determined level of toxic contamination; and
 - e) at least one activation device energized in response to the second emergency signal from the central processor transmitter, the activation device operating to reduce the level of toxic contamination within the home.
- 25 2. The system of claim 1, wherein the sensor assembly and the central processor form a single unit construction.
3. The system of claim 1, wherein the system includes a plurality of sensor assemblies, each of the sensors being in electronic communication with the central processor.

4. The system of claim 3, wherein one of each of the sensor assemblies is located proximate one of a plurality of appliances for isolated contamination detection.
5. The system of claim 4, wherein each of the plurality of appliances has a corresponding one of a plurality of deactivation devices to suspend operation of the appliance.
6. The system of claim 5, wherein the first emergency signal produced by each of the sensor assemblies is identifiable by the central processor to identify the sensor assembly from which the first emergency signal is produced.
7. The system of claim 6, wherein the second emergency signal of the central processor energizes only the deactivation device corresponding to the appliance proximately located to the sensor assembly that produced the first emergency signal.
8. The system of claim 1, wherein the deactivation device includes a shut-off mechanism, and wherein the first appliance is a gas-operated appliance, the shut-off mechanism operating to suspend gas flow to the gas-operated appliance.
9. The system of claim 1, wherein the messaging unit is a telephone unit capable of dialing an emergency number and playing a pre-recorded message upon receipt of the second emergency signal from the central processor.
10. The system of claim 1, further including an air evacuation apparatus to assist in reducing the level of toxic contamination within the home.
11. The system of claim 10, wherein the air evacuation apparatus includes a breakage mechanism, a barrier, and a blower, and wherein the activation device activates the breakage mechanism and the blower upon receipt of the second emergency signal from the central processor.

12. The system of claim 11, wherein the barrier is a plastic barrier designed to break upon impact of the breakage mechanism.

13. The system of claim 11, wherein the blower expels contaminated air from the home.

14. The system of claim 11, wherein the blower vents non-contaminated air into the home.

10 15. The detection and evacuation system of claim 1, wherein the contaminate is a toxic gas.

16. The detection and evacuation system of claim 15, wherein the toxic gas is carbon monoxide.

15 17. A contamination detection system for monitoring conditions within a monitored area, the system comprising:

20 a) a plurality of sensor means positioned within the monitored area for analyzing ambient air conditions to determine if an emergency situation exists, each of the plurality of sensor means capable of generating a first emergency signal upon detection of contaminated air;

 b) a central monitoring means, the central monitoring means capable of receiving the first emergency signal from each of the sensor means and generating a second emergency signal in response to the first emergency signal;

25 c) means for activating an air evacuation device for evacuating contaminated air upon receipt of the second emergency signal from the central monitoring means;

 d) means for deactivating an appliance upon receipt of the second emergency signal from the central monitoring means; and

30 e) means for alerting emergency personnel upon receipt of the second emergency signal from the central monitoring means.

18. A toxic contaminant detection system for monitoring conditions within a monitored area, the system comprising:

a) a plurality of sensor means positioned within the monitored area
5 for analyzing ambient air conditions to determine if an emergency situation exists, each of the plurality of sensor means including:

- i) a sensor device that senses the ambient air conditions;
- ii) a detection unit for analyzing the ambient air conditions;

and

10 iii) a transmitter for transmitting a first emergency signal if the sensor device detects an amount of contaminants in the ambient air that exceeds a pre-determined level;

b) a central monitoring means, the central monitoring means including:

15 i) a receiver for receiving the first emergency signal from any one of the plurality of sensor means;
ii) a control unit for analyzing the first emergency signal and generating a second emergency signal upon determining the existence of an emergency situation; and

20 iii) a transmitter for transmitting the second emergency signal;

c) means for activating an air evacuation device upon receipt of the second emergency signal from the central monitoring means, the means for activating the air evacuation device including:

25 i) a receiver to receive the second emergency signal from said central monitoring means;
ii) a breaking mechanism for breaking a barrier to evacuate the ambient air within the monitored area;
iv) an air circulator for reducing the level of ambient air contamination in the monitored area;

d) means for deactivating an appliance upon receipt of the second emergency signal from the central monitoring means, the means for deactivating an appliance including:

5 i) a receiver to receive the second emergency signal from the central monitoring means;

ii) a mechanism for deactivating operation of the appliance;

and

e) means for alerting emergency personnel upon receipt of the second emergency signal from the central monitoring means, the means for alerting emergency personnel including:

i) a receiver to receive the second emergency signal from the central monitoring means; and

ii) a telephone device for automatically dialing emergency personnel with a pre-recorded message.

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19. The toxic contaminate detection system of claim 18, wherein the central monitoring means further includes a display for indicating which of the plurality of sensor means has detected the amount of contaminates in the ambient air exceeding the pre-determined level.

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20. The toxic contaminate detection system of claim 18, wherein the means for deactivating the appliance further includes an alarm for indicating that an emergency situation exists.

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21. The toxic contaminate detection system of claim 18, wherein the means for alerting emergency personnel includes a cellular transmitter for contacting emergency personnel through cellular telephone networks upon receipt of the second emergency signal from the central monitoring means.

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22. The toxic contaminate detection system of claim 18, wherein the means for alerting emergency personnel further includes a memory unit for storing a plurality of

telephone numbers of emergency personnel, the means for alerting emergency personnel being capable of analyzing the second emergency signal received to select one of the plurality of telephone numbers.

5 23. The toxic contaminate detection system of claim 22, wherein said means for alerting emergency personnel is further capable of selecting one of a plurality of pre-recorded messages, each of the pre-recorded messages having information related to the detected ambient air contamination.

10 24. The toxic contaminate detection system claim 18, wherein the contaminate is a toxic gas.

25. The toxic contaminate detection system claim 24, wherein the toxic gas is carbon monoxide.

15 26. A building having a detection and evacuation system, the building comprising:
 a) a barrier constructed within the building located between the inside of the building and the outside of the building;
 b) the detection and evacuation system installed within the building,

20 the detection and evacuation system including:
 i) a contamination monoxide sensor, the contamination sensor being capable of analyzing ambient air within the building and transmitting a signal upon detection of an amount of a contaminate that exceeds a predetermined limit;
 ii) a breakage mechanism, the breakage mechanism being adapted to break the barrier to expose the ambient air inside the building to the outside of the building;
 iii) an air circulator, the air circulator including at least one fan reducing the level of contaminated ambient air;
 iv) a shut-off device connected to an appliance, the shut-off valve being adapted to termination operation of and gas flow to the appliance; and

v) a processor that electronically controls operation of the breakage mechanism, the air circulator, and the appliance shut-off device upon receipt of the signal from the sensor indicating that the amount of contaminant has exceeded the predetermined limit.

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27. The building of claim 26, wherein the building is a home.

28. A method of detecting toxic contamination of ambient air within a home and evacuating the contaminated air from the home, the method comprising the steps of:

10 a) constructing a barrier within the home, the barrier being located between the inside of the home and the outside of the home; and

b) installing a detection and evacuation system within the home, the system including:

15 i) a contaminant sensor, the contaminant sensor being capable of analyzing ambient air within the building and transmitting a first emergency signal upon detection of an amount of contaminant that exceeds a predetermined limit;

20 ii) a breakage mechanism, the breakage mechanism being adapted to break the barrier to expose the ambient air inside the home to the outside of the home;

iii) an air circulator, the air circulator including a blower for reducing the level of contaminated ambient air;

iv) a shut-off device adapted to terminate operation of an appliance; and

25 v) a processor that electronically controls operation of the breakage mechanism, the air circulator, and the appliance shut-off device upon receipt of the signal from the sensor indicating that the amount of contaminant has exceeded the predetermined limit.

29. The method of claim 28, further comprising the step of setting a threshold sensitivity of the sensor to adjust the pre-determined limit to a selected pre-determined limit.

5 30. The method of claim 28, further comprising the step of installing a messaging unit within the home wherein the processor further electronically controls the operation of the messaging unit, the messaging unit operating to dial an emergency number to notify emergency personnel that the amount of contaminant within the home has exceeded the predetermined limit.

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31. The method of claim 28, further comprising the step of arranging the blower of the air circulator to draw fresh air into the home to reduce the level of contamination.

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32. The method of claim 28, further comprising the step of arranging the blower of the air circulator to expel the contaminated air from the home to reduce the level of contamination.

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33. The method of claim 28, wherein upon receiving the first emergency signal, the processor transmits a second emergency signal received by each of the breakage mechanism, the shut-off device, and the air circulator.

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34. The method of claim 33, wherein upon receiving the second emergency signal, the shut-off device operates to terminate operation of the appliance by opening electrical connections at a switch.

35. The method of claim 33, wherein upon receiving the second emergency signal, the shut-off device operates to terminate operation of the appliance by closing a valve assembly to cut gas flow to the appliance.

36. The method of claim 33, wherein upon receiving the second emergency signal, the breakage mechanism breaks the barrier and the air circulator operates to reduce the level of air contamination within the home.
37. The method of claim 28, wherein the contaminant is a toxic gas.
38. The method of claim 37, wherein the toxic gas is carbon monoxide.
39. The system of claim 1, further comprising a messaging unit energized in response to the second emergency signal from the central processor transmitter, the messaging unit operating to notify emergency personnel that the sensor assembly has detected the pre-determined level of toxic contamination.
40. The system of claim 17, further comprising means for alerting emergency personnel upon receipt of the second emergency signal from the central monitoring means.